



UNITED STATES PATENT AND TRADEMARK OFFICE

38
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,069	09/28/2000	Yukihiwa Takeuchi	789_048 NP	7280
25191	7590	05/18/2004	EXAMINER	
BURR & BROWN				BUDD, MARK OSBORNE
PO BOX 7068				
SYRACUSE, NY 13261-7068				
ART UNIT		PAPER NUMBER		
		2834		

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/672,069	Applicant(s) TAKEUCHI ET AL.
	Examiner Mark Budd	Art Unit 2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 08 April 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 3,4,6-41 and 68-74 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) 14-41 is/are allowed.
6) Claim(s) 3,4,6-13 and 68-74 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4-8-04

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____ .

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-13 and 68-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Ogawa (057), Kohno or Kaida.

Arai (note e.g. figs. 11 & 12) teaches a piezo device comprising a pair of mutually opposing thin plate sections (#11a, #12a), a fixation section (#4 at bottom of fig. 11) and a moveable section (#4 at top of fig. 12) with plural piezo elements (#14a, #14b) that are mounted on the thin plate sections as well as extending onto either the moveable and fixation sections. Arai only uses a single layer of piezoelectric material and does not explicitly teach some of the claimed dimensions. However, each of Ogawa (057) (Fig. 15) shows terminals #4 and #13 co-planar and "substantially rectangular full width electrodes. The geometric configuration displayed by applicant in the remarks shows Ogawa having substantially rectangular electrode sections (the active areas) a small connection lead. Kohno (Figs. 1, 7, and 8) shows co-planar terminals e.g. #12, #14 or #32 #34. Kaida (Figs. 1 & 2) also teaches the multilayered piezo element with coplanar terminals. Providing multiple piezo layer in lieu of a single piezo-electric layer increase the output while lowering the impedance in a known, predictable manner. Thus to provide Arai with multiple piezo layers with the convenience of same surface electrical connections (terminals), would have been obvious to one of ordinary skill in the art. Also, since it has long been held that optimization of a known device for a specific

Art Unit: 2834

application is within the skill expected of the routineer, selection of specific dimensions would have been obvious to one of ordinary skill in the art.

Claims 3, 4 and 6-9 are rejected under 35 USC 103 as unpatentable over Arai in view of Kohno and combined with Grauley of Um. The claim adds that a thru hole is provided in the carrier plate. According to applicant's previous remarks, the hole must be in a location at which the piezo element covers the hole. Note Um #34 and Grauley (fig. 6) which show electrodes or the piezo element covers the hole. Note UM #34 and Grauley (Fig. 6) which show electrodes or carrier plates provided with holes to increase bonding strength and/or provide electrical connections. Thus for at least these reasons it would have been obvious to one of ordinary skill in the art to provide Brunnee with thru holes under the piezo element.

Claims 14-41 remain allowed.

MARK V. BUDD
PRIMARY EXAMINER
ART UNIT 212

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-13 and 68-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai in view of Ogawa (057), Kohno or Kaida.

Arai (note e.g. figs. 11 & 12) teaches a piezo device comprising a pair of mutually opposing thin plate sections (#11a, #12a), a fixation section (#4 at bottom of fig. 11) and a moveable section (#4 at top of fig. 12) with plural piezo elements (#14a, #14b) that are mounted on the thin plate sections as well as extending onto either the moveable and fixation sections. Arai only uses a single layer of piezoelectric material and does not explicitly teach some of the claimed dimensions. However, each of Ogawa (057) (Fig. 15) shows terminals #4 and #13 co-planar and "substantially rectangular full width electrodes. The geometric configuration displayed by applicant in the remarks shows Ogawa having substantially rectangular electrode sections (the active areas) a small connection lead. Kohno (Figs. 1, 7, and 8) shows co-planar terminals e.g. #12, #14 or #32 #34. Kaida (Figs. 1 & 2) also teaches the multilayered piezo element with coplanar terminals. Providing multiple piezo layer in lieu of a single piezo-electric layer increase the output while lowering the impedance in a known, predictable manner. Thus to provide Arai with multiple piezo layers with the convenience of same surface electrical connections (terminals), would have been obvious to one of ordinary skill in the art. Also, since it has long been held that optimization of a known device for a specific

Art Unit: 2834

application is within the skill expected of the routineer, selection of specific dimensions would have been obvious to one of ordinary skill in the art.

Claims 3, 4 and 6-9 are rejected under 35 USC 103 as unpatentable over Arai in view of Kohno and combined with Grauley of Um. The claim adds that a thru hole is provided in the carrier plate. According to applicant's previous remarks, the hole must be in a location at which the piezo element covers the hole. Note Um #34 and Grauley (fig. 6) which show electrodes or the piezo element covers the hole. Note UM #34 and Grauley (Fig. 6) which show electrodes or carrier plates provided with holes to increase bonding strength and/or provide electrical connections. Thus for at least these reasons it would have been obvious to one of ordinary skill in the art to provide Brunnee with thru holes under the piezo element.

Claims 14-41 remain allowed.

MARY U. BUDD
PRIMARY EXAMINER
ART UNIT 219